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MR. F. LAMSON SCRIBNER has published a revision of the North American *Meliceæ* in the Proceedings of the Philadelphia Academy. The genus is divided into three sections, GLYCERIE (3 species), EUMELICA (8 species), and BROMELICA (4 species). The five new species proposed are (1) *M. Torreyana* (separated from *M. imperfecta* Trin.) from California, (2) *M. frutescens* from the same State, (3) *M. spectabile* (*M. bulbosa* of Bot. King's Exp. and Fl. Colorado), (4) *M. Californica* (*M. bulbosa*, Thurber, in Bot. Calif.), and (5) *M. subulata* (*Bromus subulatus*: *M. acuminata* of Bot. Calif.) *M. mutica*, var. *diffusa* is raised to specific rank as *M. diffusa*, Pursh. *M. Porteri*, Scribner, includes *M. mutica*, var. *parviflora* of Fl. Colorado, and *M. stricta* of Brandegee's Fl. S. W. Col. *M. mutica*, var. *glabra* of Gray's Manual is *M. mutica*, Walt. A full list of localities and collectors completes this excellent paper.

IN THE *Journal of Botany* for April Thomas Hick describes (with plate) protoplasmic continuity in *Fucaceæ*. *Ascophyllum nodosum* is the form chiefly described. All the methods of treatment are given so that confirmatory work is made very easy. In every case at the ends of the cells concerned there is an annular thickening on the internal wall, which is unlike the cell wall under the action of reagents, and seems to resist the action of the strongest acids and alkalis. Four types of continuity are given, viz., (1) the ring surrounds a comparatively wide and open pore, through which the protoplasm is continuous in a single thread; (2) a delicate diaphragm stretches across the space enclosed by the ring, and through this the protoplasm is continuous, as through a sieve plate, by a number of delicate threads (the commonest form); (3) like the second, except that the continuity is effected by a thin and delicate ribbon of protoplasm, which passes through a narrow slit in the diaphragm; (4) the diaphragm is complete except at the center, where is an extremely minute pore, through which a single delicate strand of protoplasm maintains the continuity.

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## CURRENT LITERATURE.

*A Course of Practical Instruction in Botany; Part I. Phanerogamæ-Pteridophyta.*

By F. O. Bower, M. A., F. L. S., and Sidney H. Vines, M. A. D. Sc., F. L. S., with a preface by W. T. Thiselton Dyer. Macmillan & Co., London, 1885. 12°. 226 pp.

Ten years ago Huxley and Martin's Elementary Biology was published. It was the first laboratory manual of the kind, and the excellency of its conception is well attested in the numerous works after the same pattern which have since appeared. Up to the present these have been confined to zoölogy, although the model included botany also. The work before us belongs to this class of text-books, and, as we learn from the preface, its inception reaches back to Professor Huxley's own laboratory and methods, and even antedates his work. Mr. Thiselton Dyer was at that time giving instruction at what is now the Normal School of Science at South Kensington, and assisted in the preparation of the botanical part of Huxley and Martin's book. The methods which he found so valuable have been adopted by his successor, Mr. F. O. Bower, to whom, with the assistance of Dr. Vines, of Christ's College, we are indebted

for the present work. Of the great value to both teacher and pupil of such a handbook, when well prepared, there can be but one opinion.

The work opens with sixteen pages on methods of preparing the material, followed by seven pages on reagents and twenty pages on the structure and properties of the cell. The remainder of the work, one hundred and eighty pages, is devoted to the study of types of phanerogams and pteridophytes. The student takes up the sunflower as illustrating in its seeds the dicotyledonous embryo, and in its stem the herbaceous type of structure, followed by the elm for the arboreous type, and the mare's-tail (*Hippurus vulgaris*) for the aquatic type. Sieve tubes are then examined in *Cucurbita* and *Tilia*, laticiferous vessels in the dandelion and *Euphorbia splendens*, followed by a study of leaves and roots. Corn is next used to illustrate the embryo and germination in monocotyledons and also for the herbaceous type of stem, yucca being used for the arboreous type, and is followed up by a study of roots and leaves. This brings us to the consideration of the reproductive organs of both classes, together with the development of the embryo. Beside the plants enumerated, some ten others are used in this part of the work to illustrate special features, or as preferable for certain parts; some of these are natives, some exotics. Passing to the gymnosperms, *Pinus sylvestris* is taken to show different phases of structure and development. In pteridophytes the following plants are used: *Selaginella Martensii*, *Lycopodium clavatum*, *Aspidium felix-mas* and *Equisetum arvense*. This closes the volume, which is but the first part of the projected work; the second part proposes to complete the types of the lower forms, and it is to be hoped will also supply an index.

The free use of unexplained technical terms, the skill required for some of the manipulations, and the use of the most complex types at the outset, indicate that the work is not intended for beginners. For those who have sufficient knowledge of the science to intelligently follow the directions, however, it will prove a great boon.

The method of paragraphing adopted permits of an easy handling of the subject. The student is directed to look at certain parts and is told some characteristic by which they may be recognized, while at the same time much information of a theoretical nature, points in homology, special methods of demonstrating a difficult feature, the suggestion of comparative studies, and various other helpful matters are interspersed. Reagents and the latest processes of staining are freely used. The interpretation of structure according to the most recent investigations, and a corresponding nomenclature, are items that will be highly appreciated by the progressive student.

This publication will enable English students to obtain a practical knowledge of the fundamental features of plant structure in accordance with latest views, and it is therefore a much needed work. But while the execution of the work as it stands is of the highest order, some doubt may be expressed regarding the desirability of starting out with the highest type of the vegetable kingdom, instead of progressing from the simpler forms upward. For advanced students, however, this is of little moment.